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Buying Capacity Before It Exists Advance Payments and Supply Commitments in AI Infrastructure 6 November 2026

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Abstract

Advance contracts coordinate infrastructure investment by making selected obligations binding before projects are complete. This paper examines how that coordination connects equipment access, supplier funding, and investment momentum. We combine disclosures from three major power-equipment suppliers with buyer agreements and completed and discontinued project histories. Contract terms separate access, price, purchase obligations, and exit rights, allowing firms to commit to equipment while other development conditions remain unresolved. Customer payments bring procurement funds into suppliers' cash flows ahead of delivery. A stock-flow framework establishes when the progression of earlier reservations raises firm-order intake even as new commitments decline. GE Vernova's quarterly gross firm-backlog additions doubled from 8 to 16 GW between the first and third quarters of 2026, while new commitments fell from 21 to 11 GW. Conversions contributed 80.6% of gross firm-backlog additions over the nine months. The findings identify a source of persistence in infrastructure investment: earlier contracts continue to advance into production obligations after new intake slows. Evaluating an expansion therefore requires separating the arrival of commitments, their contractual advancement, and their eventual delivery. This distinction links firm-level contracting to industrial investment analysis in markets with long equipment lead times.

1. Introduction

Long-lived infrastructure depends on commitments made before the completed asset exists. Equipment manufacturers need sufficient confidence to organize production and investment; project developers need access to equipment before permits, engineering, financing, and revenue arrangements are all settled. Waiting for complete certainty on both sides can leave the investment sequence unable to proceed. Advance contracts connect these decisions by making particular rights and obligations effective while other project conditions remain open.

The economic consequence extends beyond the timing of a purchase. A reservation allocates future access, its payment terms assign part of the cost of withdrawal, and customer cash can enter the supplier's funding base before delivery. As a project develops, its reservation can become a firm order. That transition strengthens the supplier's formal order book even though the commitment originated earlier. Contracting thus organizes both the allocation of resources across firms and the transmission of earlier investment decisions through time.

This paper asks how advance contracts coordinate investment across incomplete projects, and what their progression implies for the measurement of an industrial expansion. We examine the power-equipment market serving AI infrastructure and other electricity investment. Long delivery schedules and shared manufacturing capacity make it possible for demand from one group of buyers to enter production planning well before the associated assets operate. The analytical object is the sequence of enforceable commitments, funding, and physical delivery through which future supply is organized.

GE Vernova's December 2024 disclosures illustrate the coordination problem. Management described 9 GW of fixed-price reservations for 2027–2028 slots, supported by deposits and financial backstops, while some customers were still developing air permits and engineering, procurement, and construction arrangements. Management also stated that additional capital expenditure, if undertaken as orders increased, would be supported by customer deposits and progress payments (GE Vernova, 2024). Equipment access and prospective supplier funding were being arranged before the buyers' projects were ready as a whole.

We combine a comparative reading of contract terms with supplier cash-flow evidence and an equipment-quantity reconciliation. The contracts show which commitments become binding and which contingencies survive. The financial disclosures establish the timing and scale of customer funding. The quantity accounts distinguish commitments newly entering a supplier's pipeline from existing reservations becoming firm orders. These observations locate three economically distinct events within the same investment process: entry, advancement, and delivery.

The central result is that contractual advancement carries investment momentum forward independently of the direction of new intake. GE Vernova's quarterly gross firm-backlog additions doubled from 8 to 16 GW between the first and third quarters of 2026, while new commitments fell from 21 to 11 GW. Conversions of earlier reservations supplied 29 of 36 GW of gross firm-backlog additions over the nine months. New commitments exceeded shipments, so the combined stock continued to grow. Stronger firm-order intake, a larger outstanding workload, and weaker new entry therefore describe the same observed expansion.

The paper contributes an integrated account of investment coordination and its observable consequences. Selective contractual commitment explains how firms advance particular equipment obligations before all project conditions are resolved. Separating customer funding from physical supply explains why the financial and productive sides of expansion move on different schedules. The stock-flow analysis establishes the conditions under which conversion reverses the direction of the order-growth signal, and the disclosed quantities show that reversal in practice. These results give industrial investment analysis a way to distinguish an expansion drawing on earlier commitments from one receiving an accelerating flow of additional commitments.

2. Related literature and contribution

Capacity contracting, supply-chain finance, and sequential investment provide the foundations for analyzing investment coordinated across firms. The present paper connects their distinct objects: rights to future supply, the availability of production funds, and the progression of commitments toward operating assets. The contribution is the economic interpretation and measurement of that progression over an investment cycle.

Serel, Dada, and Moskowitz (2001) distinguish a paid right to draw on reserved capacity from actual procurement, with spot supply as an alternative. Spinler (2003) develops an options approach to

reservation in capital-intensive technologies, linking advance capacity contracts to subsequent spot procurement. Erkoc and Wu (2005) analyze deductible reservation payments, supplier capacity choices, and coordination, including an extension in which firm orders precede complete resolution of demand uncertainty. These models explain the economic value of early and partial commitment. Our contract evidence follows that mechanism through disclosed equipment agreements, identifying which obligations become effective while permitting, pricing, or offtake remains open. The supplier reconciliation then traces how commitments advance through the production pipeline.

Özer and Wei (2006) distinguish reservation contracts that screen private forecasts from advance purchases that signal them. Their equilibrium analysis explains how contract design makes information revelation credible. The participation condition below isolates the buyer's access benefit, forfeiture exposure, and financing cost at given payment terms. Davis and Leider (2018) compare bargaining over five contract forms and find that contractual incentives perform differently with human decision makers. Together, these studies make the provisions of an agreement central to understanding commitment. We examine those provisions alongside the disclosed project conditions and subsequent physical milestones.

Advance-payment studies connect procurement to production finance. Zhang et al. (2016) study advance payment for stable supply within a two-stage ordering problem. Huang (2022) examines advance payments, payment timing, and discounts for disruption-exposed suppliers. Zha et al. (2024) compare advance payment with retailer-sponsored financing, in which the retailer supports part of the supplier’s bank repayment. De Véricourt and Gromb (2018) jointly optimize capacity and financing under moral hazard; optimal capacity can exceed the efficient level when financing incentives bind. These findings separate access to funds from the investment choice. In the evidence below, supplier cash-flow adjustments measure the reported contribution of contract liabilities to operating cash flow, while capacity disclosures identify the separate physical adjustment.

Purchasing research places financing within relationships among buyers, suppliers, and financial intermediaries. Choi et al. (2023) document the supply-chain financing ecosystem's response to the COVID-19 crisis, including suppliers' demands for prepayment and buyers' early payments to sustain supply. De Goeij, Gelsomino, and Elhenawy (2026) examine coordination between financial and purchasing functions and report capacity commitments, material reservations, and prepayments used to secure supply or demonstrate customer commitment. These studies establish how payment timing and early commitment support procurement. We follow these arrangements through an infrastructure expansion: buyers acquire future access, suppliers receive customer funding, and commitments progress toward delivery. Their progression also changes reported investment momentum, as earlier reservations become firm orders while the pace of new commitments changes.

Majd and Pindyck (1987) model irreversible construction expenditures whose timing can adjust before a project is completed. Their framework establishes the investment value of sequential flexibility. Equipment agreements add observable contractual conditions to the development sequence: access

may be paid for, purchase may remain optional, and exit may depend on a specified commercial milestone. Recording those conditions makes it possible to distinguish contractual performance from completion of the buyer's asset.

Capital-goods research also uses order backlogs to study investment timing. Meier's working paper, Supply Chain Disruptions, Time to Build, and the Business Cycle (2020, CRC TR 224 Discussion Paper No. 160, Section 2.1), measures delivery time using backlog and shipment data and distinguishes their cyclical behavior from that of new orders. Our measurement begins one stage earlier: a reservation can enter the supplier's combined commitment pipeline before becoming a firm order. Tracking that transition separates contractual advancement from new entry, complementing analysis of the subsequent order-to-delivery interval.

Related AI-financing work studies different economic outcomes. The working paper Financing Future Demand: AI Investment Booms and Financial Amplification (Yang, Huang, and Qiu, 2026; https://doi.org/10.5281/zenodo.23739891) connects corporate investment budgets to cash-flow borrowing capacity and financial amplification. The working paper Credit Support and Debt Expansion in AI Infrastructure (Yang and Huang, 2026; https://doi.org/10.5281/zenodo.23945409) analyzes credit support, chosen debt, and lender losses, and traces beneficiaries and activation conditions through financing contracts. Their analysis also distinguishes customer-refund protection from debt protection. We adopt that obligation-specific reading for payment support and extend the empirical focus to equipment access, price, purchase obligations, and exit provisions. The results here concern new entry, conversion, and shipment in the equipment commitment pipeline, together with the development conditions accompanying buyer contracts. The contribution lies in connecting those contractual differences to observed commitment quantities and physical progress.

The remaining question concerns the transmission of these commitments through observable investment stages. Capacity-reservation research establishes why parties commit early; supplier-finance research explains the role of payment terms; sequential investment explains the value of waiting and advancing at different dates. We connect these mechanisms to agreement-level rights and supplier-level flows. This yields a precise distinction between the creation of a commitment and its subsequent advancement, with direct consequences for reading order growth, customer funding, and future delivery obligations.

3. Investment coordination through advance contracts

Consider three dates. At the first date, a buyer decides whether to reserve future equipment. At the second, additional project information is resolved and a reservation may become a firm order. At the third, equipment is delivered. Commercial operation may occur later still. The supplier chooses production, investment, and procurement over the interval, subject to technical and financial constraints.

Let $A \geq 0$ denote cash paid at reservation, $0 \leq d \leq A$ the amount lost if the buyer withdraws, and $r \geq 0$ the opportunity-cost rate over the reservation interval, so that rA is the cost of tying up the initial payment.

Let q ∈ [0, 1] be the probability that the project proceeds, and g > 0 the buyer's net benefit from securing access rather than waiting, conditional on proceeding. Assume that the initial payment is credited against the equipment price if the project proceeds, that the remaining part is refunded if it does not, and that q and g are held fixed when comparing payment terms. The supplier performs as agreed, and the buyer chooses participation at given payment terms. Let L denote funds available for the initial payment; reservation also requires A ≤ L.

The buyer reserves when the expected incremental benefit is nonnegative:

$$qg - (1 - q)d - rA \geq 0.$$

1

For g + d > 0, the participation threshold is q ≥ (d + rA)/(g + d). When g > rA, increasing the forfeitable amount d raises this threshold, holding A fixed. A larger opportunity cost also raises it. A larger benefit from assured access weakly lowers it. If g < rA, even a project certain to proceed cannot justify the reservation under these terms. In the economically relevant interior case g > rA, more forfeiture requires a higher probability of proceeding, holding A and the access benefit fixed. Conversely, an acute access problem can sustain participation at a lower probability. A paid reservation therefore combines the value of timely equipment with the prospects and cost of completing the project.

The threshold also clarifies the distinction between credibility and wealth. If otherwise identical buyers face different financing costs or cash constraints, the same payment requirement can screen on financial capacity as well as project quality. Observing a paid reservation establishes willingness and ability to commit under the prevailing terms. The conditions A ≤ L and q ≥ (d + rA)/(g + d) jointly determine participation, linking access to equipment to both liquidity and the expected value of proceeding.

For the supplier, let W be internal funds, D external financing available at the investment date, U unrestricted customer cash available for use, I investment spending, and P required production working capital. The feasible funding condition is:

$$I + P \leq W + D + U.$$

2

An increase in U expands the feasible set dollar for dollar when the constraint binds and other sources remain unchanged. Actual investment need not rise by the same amount: the supplier may reduce borrowing, retain liquidity, fund working capital, or face an engineering bottleneck. The financing function is the relaxation of a funding constraint; its investment effect depends on the constraint being economically relevant.

Finally, let future productive capacity be K = K0 + f(I, z), where z represents productivity, process redesign, or utilization improvements. Capacity can grow through I, z, or both. A cash-flow comparison that

contains I but omits z is therefore incomplete as a measure of supply response. The distinction becomes central when firms expand throughput by reducing manufacturing lead times.

These relationships explain why the same contract can coordinate investment through several channels. The access benefit supports buyer participation; forfeiture allocates the cost of discontinuation; unrestricted customer cash expands the supplier's feasible funding set. Their effects depend on different margins. Access can be valuable to a buyer even when the supplier has ample external finance, and customer cash can improve funding conditions while manufacturing constraints delay delivery. The empirical analysis accordingly observes contract rights, funding, and production separately.

Selective commitment is the contractual arrangement that connects those margins. Parties can settle access without settling price, or settle a purchase while retaining a specified exit condition. The resulting sequence permits investment tasks to advance without requiring simultaneous resolution of every project contingency. BKV and MAXIM identify different combinations of binding and open terms; Anlima identifies the cost of a discontinued project; Windstar follows a completed sequence. These comparisons give the framework observable contractual content.

4. Evidence and measurement

The core quantitative evidence covers GE Vernova, Siemens Energy, and Mitsubishi Heavy Industries and contains 62 numerical observations from 15 official company disclosures, together with a coded event ledger. Four additional primary sources—company disclosures of agreement terms and a court decision reproducing contractual provisions—support the buyer-side and judicial contract comparison, and five historical disclosures trace the Windstar project from reservation through operation. The companies provide complementary information: GE Vernova discloses reservations, firm backlog, conversions, and shipments in GW; Siemens Energy combines commitment quantities with cash-flow and capacity commentary; Mitsubishi Heavy Industries provides evidence on customer advances, production methods, and revenue recognition.

For contract evidence, the observation unit is an agreement at a stated disclosure date. Each record distinguishes five dimensions: access granted, price status, purchase obligation, exit or refund terms, and third-party support. Project readiness is recorded separately through disclosed permitting, engineering, financing, and offtake conditions. A field is marked as observed present, explicitly absent, conditional, or not disclosed, with the underlying wording summarized. For third-party support, the protected obligation and the direction of protection are recorded alongside its presence. Silence is retained as missing information. The five dimensions describe the contractual position of each project: payment protection, price certainty, and purchase obligations can develop on different schedules.

For the quantitative series, the observation unit is a disclosed firm-period-metric. The design is a comparative institutional study with accounting reconciliation. Each numerical record retains its source, period end, unit, scope, and interpretation. Financial comparisons use the reporting entity’s disclosed

scope, including group-wide cash flows. Plan announcements, management-reported capacity achievements, and equipment shipments are coded as distinct events.

Case selection follows the economic function to be observed. The three suppliers provide complementary quantity, cash-flow, and production disclosures. BKV links reservations to a purchase agreement; MAXIM separates a manufacturing slot from final pricing; Anlima exposes the treatment of reservation rights when a project does not proceed; Windstar traces procurement through operation. This purposive comparison identifies how contractual arrangements organize distinct investment paths.

The comparison proceeds through matched questions across records. For each agreement, we ask what the buyer receives at reservation, what must occur before purchase, which payments become due, and what survives termination. This distinguishes the provision of access from the transfer of equipment. The disclosed wording controls the classification: an amount payable is separated from an amount reported paid, a credit against the purchase price from an additional payment, and release from future obligations from repayment of earlier cash. A third-party guarantee is interpreted through its beneficiary and covered obligation. These dimensions provide a common basis for comparing the BKV, MAXIM, and Anlima agreements.

Supplier quantities and buyer records connect the aggregate investment sequence to its contractual foundations. The supplier series measures movement between reporting categories, while the agreements establish the rights and contingencies carried by commitments. The two levels are connected by the event being measured—reservation, purchase, payment, shipment, or operation. Individual buyer records remain separate from GE Vernova's aggregate observations; the comparison examines their common economic functions.

Fiscal calendars require explicit alignment. Siemens Energy's fiscal 2026 first quarter ends in December 2025; its third quarter ends in June 2026. Mitsubishi Heavy Industries' fiscal 2025 ends in March 2026. GE Vernova reports on a calendar-year basis. Tables use calendar period ends so that a comparison never depends on the quarter label alone.

Let S be outstanding reservations, B firm equipment backlog, N new reservations, O direct firm orders, C reservation conversions, H shipments, and X withdrawals. With measurement and classification residuals e, the stock-flow relations are:

$$\Delta S = N - C - X_s + e_s; \quad \Delta B = O + C - H - X_b + e_b.$$

3

Gross additions to firm backlog are O + C; new commitments entering the combined pipeline are N + O. These flows answer different questions. Adding the two equations removes C. Combined commitments T = S + B evolve with new reservations and direct orders, net of shipments and withdrawals. A conversion changes the contractual status of an existing commitment without adding to the combined stock. Throughout the analysis, new entry means commitments newly booked into the reporting supplier's

pipeline. It is measured separately from final electricity demand and from the number of unique projects across suppliers. The reconciliation therefore follows the supplier's disclosed equipment quantities and their movement between categories.

The stock-flow decomposition identifies the conditions for opposing order-growth signals. Define F as gross firm-backlog additions, O + C, and E as new pipeline entry, N + O. For changes between two reporting periods with comparable classifications, the difference between the change in F and the change in E equals the change in conversions minus the change in new reservations. Firm-order additions rise while new entry falls exactly when the increase in conversions exceeds the negative of the change in direct orders, and the change in new reservations falls below that same threshold. The result follows directly from the two flow definitions.

Conversion carries earlier procurement decisions into current firm-order intake by advancing a reservation into a purchase obligation. The combined stock responds to new entry, shipments, withdrawals, and measurement residuals. A growing combined stock during declining entry requires entry still to exceed shipments and net exits after reconciliation. The evidence below evaluates both conditions, so that order growth and stock growth receive distinct explanations.

Published quantities are rounded. The data preserve disclosed aggregates separately from component sums and retain unexplained reconciliation differences. For example, GE Vernova's second-quarter 2025 release reports a combined 55 GW, alongside 29 GW of firm backlog and 25 GW of reservations. The components sum to 54 GW. The database keeps both figures and a 1 GW discrepancy (GE Vernova, 2025b). The discrepancy is not coded as a cancellation.

Financial quantities receive the same treatment. A contract-liability balance, its cash-flow adjustment, and gross customer receipts are different variables. Revenue recognition can reduce contract liabilities without a cash outflow; acquisitions and other accounting changes can also affect balances. A cash-flow adjustment is therefore not relabeled as gross advances. Currency amounts remain in their original units, and company totals are not added across currencies.

5. Findings

5.1. The commitment stock expands before delivery

GE Vernova's disclosed firm backlog and reservations together rose from 83 GW in December 2025 to 122 GW in September 2026, an increase of 47.0%. The composition also changed: firm backlog rose from 40 to 64 GW and reservations from 43 to 58 GW. These figures describe equipment commitments, not installed power capacity (GE Vernova, 2026a; GE Vernova, 2026b; GE Vernova, 2026c).

[Table 1 about here]

Table 1
GE Vernova commitment stocks and quarterly flows (GW)

Period end	Firm backlog	Reserved slots	Combined stock	New entry	Firm additions	Converted	Shipped
2025-12-31	40	43	83	—	—	—	—
2026-03-31	44	56	100	21	8	6	4
2026-06-30	53	63	116	20	12	10	3
2026-09-30	64	58	122	11	16	13	5

Sources: GE Vernova (2026a**–c). Stocks at period end; flows during quarter. New entry = new reservations + direct orders; firm additions = direct orders + conversions. Q1–Q3 new reservations: 19, 18, 8 GW; direct orders: 2, 2, 3 GW. Combined stock = backlog + reservations. The Q2 reservation reconciliation residual is − 1 GW at disclosed precision. Dashes indicate opening-period flows not tabulated.**

The within-year flows show why the distinction between new commitments and contract maturation matters. Quarterly conversions rose from 6 to 10 to 13 GW. Over the same quarters, new reservations were 19, 18, and 8 GW. The two series move differently because they describe different events. Faster conversion in the third quarter is compatible with slower reservation intake. Combined commitments still grew because the inflow of new commitments exceeded shipments after allowing for disclosed rounding differences.

The distinction reverses the direction of the observed quarterly signal. Gross additions to firm backlog, O + C, rose from 8 to 12 to 16 GW, doubling between the first and third quarters. New commitments, N + O, were 21, 20, and 11 GW, declining 47.6% over the same endpoints. Across the nine months, conversions accounted for 29 of 36 GW, or 80.6%, of gross firm-backlog additions. Counting those conversions again alongside new commitments would report 81 GW of inflow instead of 52 GW. Deducting 12 GW of shipments and retaining the − 1 GW reconciliation residual gives the observed 39 GW increase in combined commitments. These are calculations from the rounded quantities in Table 1.

Formal-order growth carries both current procurement and earlier reservations into the delivery pipeline. In the three quarters examined, the acceleration in GE Vernova's gross firm-backlog additions came alongside declining new entry. Reading new commitments, conversion, and shipments together reveals how the industry's workload can continue to mature while the pace of additional procurement slows.

5.2. Contract terms link access and commitment

Siemens Energy describes reservations as commitments intended to convert to firm orders within a defined period, typically around six months. Its September 2026 pre-close call links fees and advances to economic protection and project selection. At that date, management reported no delays or

cancellations of previously signed reservations or orders (Siemens Energy, 2026d). The report records the performance of the signed commitments as of that call.

Mitsubishi Heavy Industries likewise describes customers providing advances to secure production slots in a tight market (Mitsubishi Heavy Industries, 2026b). Together with the earlier GE Vernova sequence, these disclosures support a common institutional finding: payment and access are connected before delivery. Contract form differs across firms, but an intermediate stage between interest and shipment is economically material.

Advance contracting serves expanding suppliers as well as financially constrained ones. In the disclosed arrangements, access to production schedules, customer commitment, and risk allocation motivate early payment alongside funding needs. These functions help organize future supply while buyers continue developing their projects.

5.3. Customer funding enters before delivery

For Siemens Energy, contract-liability cash-flow adjustments total €5.359 billion over the first three quarters of fiscal 2026. Capital expenditure cash outflows over those quarters total €1.125 billion. The resulting scale ratio is 4.76. Both quantities are group-wide: the comparison places the working-capital cash-flow contribution of customer contracts alongside investment spending, with the allocation of those funds across businesses and uses left unobserved (Siemens Energy, 2026a; Siemens Energy, 2026b; Siemens Energy, 2026c).

Mitsubishi Heavy Industries reports fiscal 2025 group contract liabilities of ¥2,161.8 billion, compared with a restated ¥1,434.5 billion a year earlier. Its annual cash-flow bridge separately reports ¥663.5 billion associated with advances received (Mitsubishi Heavy Industries, 2026a). The stock change and bridge item are retained separately. Their economic relevance is the presence of a customer-funding channel whose timing differs from equipment revenue and delivery.

[Table 2 about here]

Table 2
Siemens Energy group cash-flow measures (€ million)

Period end	Fiscal quarter	Contract-liability adjustment	Capital expenditure
2025-12-31	FY2026 Q1	2533	347
2026-03-31	FY2026 Q2	1945	364
2026-06-30	FY2026 Q3	881	414
Nine months	Total	5359	1125

Sources: Siemens Energy, 2026a, Siemens Energy, 2026b, Siemens Energy, 2026c. **Positive amounts shown; capital expenditure is a cash outflow. Contract-liability adjustments are not gross customer receipts.**

These observations establish why supplier cash generation belongs in the analysis of an infrastructure boom. When payments arrive early, part of the buyer's commitment is already on the supplier's balance sheet while the physical project is still developing. The supplier's cash position and the buyer's delivery exposure can therefore increase together. The net effect on leverage or investment depends on how that liquidity is used.

5.4. Capacity expansion has more than one margin

The capacity evidence distinguishes implementation from intention. Siemens Energy reported medium-sized turbine capacity increasing from about 50 units in fiscal 2025 to about 80 in fiscal 2026. Its expansion of large-turbine capacity from 35 to 50 units was described as contributing from fiscal 2027; its approximately 30 GW annual delivery capacity for 2030 remained a target (Siemens Energy, 2026d). Together, these disclosures describe the current manufacturing base and its planned expansion.

GE Vernova's January 2025 disclosure set out plans for 70–80 heavy-duty turbines annually beginning in the second half of 2026 and approximately 20 GW of annual shipments starting in 2027 (GE Vernova, 2025a). Mitsubishi Heavy Industries emphasized productivity improvements before further equipment spending, targeting 30% capacity growth by fiscal 2028. It also explained that percentage-of-completion revenue does not directly track production or shipment volume (Mitsubishi Heavy Industries, 2026b).

The economic implication is that capital expenditure, manufacturing capacity, shipments, and installed output are separate margins of adjustment. A supplier can increase productive capacity through process improvements; a manufacturer can ship equipment before a power plant operates; accounting revenue can be recognized before shipment. The investment sequence must accommodate all of these possibilities.

5.5. AI demand operates through a shared equipment market

Siemens Energy disclosed data-center-related commitments of 22 GW out of 80 GW at the end of December 2025 and 24 GW out of 87 GW at the end of March 2026, or approximately 27.5% and 27.6% (Siemens Energy, 2026a; Siemens Energy, 2026b). These are data-center classifications, not a split between AI and other computation. They locate the emerging demand within a broader equipment market.

AI infrastructure draws on an equipment market shared with utilities and other power customers. Procurement in that market connects the computational investment cycle to a wider industrial expansion. Advance contracts allocate access to the same production schedules across these buyers, making the development of future supply a market-wide question. Disclosed buyer categories identify the data-center component within that broader demand.

5.6. Buyer-side evidence: staged commitments and differentiated rights

BKV provides a buyer-side record of early payment. Its filing for the quarter ended June 2026 reports a January reservation agreement for up to approximately 1,230 MW, with fees of up to $80 million and $60 million paid by June. Payments are generally non-refundable and creditable against a definitive supply agreement (BKV Corporation, 2026a). These observations establish a cash-backed commitment before the equipment purchase stage.

Its October filing reports an approximately $800 million supply contract, crediting $80 million in prior reservation fees. Delivery is scheduled for September 2028–May 2029. About $200 million is due by March 2027, including the credit; approximately 90% of that early portion has a hyperscaler backstop. The intended offtaker is that hyperscaler. If mutually acceptable offtake arrangements are absent by March 31, 2027, BKV may terminate without further payment obligations (BKV Corporation, 2026b). This is an observed transition from paid reservations into a supply contract with a continuing offtake contingency. The $80 million credit forms part of the contract price, and the backstop provides contingent protection for the specified early payments.

MAXIM supplies a useful contrast. Its February 2026 agreement with GE Vernova reserves a manufacturing slot for the Prairie Lights project, targeting delivery by 2030. A non-refundable deposit is payable in 2026 and creditable against a later purchase. The definitive price remains to be negotiated. Existing permits require an amendment for the selected turbine and schedule (Maxim Power Corp., 2026). Reserving production access and locking an equipment price are therefore distinct contractual decisions.

The historical Anlima dispute provides an adverse-outcome comparison. In [2026] SGHC 21, the Singapore High Court distinguished a reservation from a supply contract: the buyer had no obligation to purchase. The project depended on a power-purchase agreement that did not materialize. The court interpreted the $2 million reservation fee as non-refundable except upon supplier breach and treated the reserved equipment or price as a distinct contractual purpose (Singapore High Court, 2026, paragraphs 47–52). The interpretation appears in reasons concerning an interim injunction, with an appeal recorded in the judgment. The reservation fee was backed by a bank guarantee in favor of Anlima for supplier breach. This protects the buyer's refund claim, whereas the BKV backstop covers an early portion of the purchase price. Economically, the Anlima record illustrates how a project can fail while the contractual service of reserving access has already been performed.

These cases change the unit of analysis from a generic prepayment to a bundle of rights. Access, price protection, purchase obligation, refundability, and third-party support need not move together. The relevant progression is consequently multidimensional: a project may have an equipment contract while its offtake remains unresolved, or a manufacturing slot while its final equipment price remains open. Contract maturity cannot be represented adequately by a single binary indicator.

5.7. How commitments are allocated across stages

At the supplier level, GE Vernova's December 2024 account combines deposits, fixed prices, and unresolved project-development tasks. Siemens Energy describes defined conversion periods and economic protection; MHI links advances to production slots. At the buyer level, the cases above show how the individual rights can differ. Table 3 compares the five contractual dimensions across the buyer agreements, including BKV's transition from reservation to purchase.

Table 3
Rights and obligations across buyer agreements

Agreement	Equipment access	Price	Purchase obligation	Exit / refund	Third-party support
BKV reservation (2026a)	Reserved manufacturing capacity, up to 1,230 MW	Not disclosed	Not disclosed	Fees generally non-refundable; credited to purchase	Not disclosed
BKV purchase (2026b)	Supply agreement; delivery in 2028–2029	About $800 million	Purchase subject to offtake-related exit	Qualifying exit releases future payments	Hyperscaler backstop: about 90% of early payment portion
MAXIM (2026)	Manufacturing slot reserved; target delivery by 2030	To be negotiated	Not disclosed	Deposit non-refundable; credited to purchase	Not disclosed
Anlima (2026)	Equipment / price reservation	Price reservation addressed in judgment	No obligation to purchase	Refund exception for supplier breach	Bank guarantee protects buyer's refund claim

Sources: BKV Corporation (2026a, 2026b)**; Maxim Power Corp. (2026);** Singapore High Court (2026)**, paragraphs 6, 10–14 and 47–52. BKV's offtake condition has a March 31, 2027 deadline. MAXIM's deposit is payable in 2026. Anlima is a historical project comparison; the cited judgment concerns an interim injunction and records an appeal. "Not disclosed" identifies information absent from the cited record.**

[Table 3 about here]

The comparative result is an allocation of commitment across stages and across contractual dimensions. Reservation secures a specified commercial service; a definitive purchase adds equipment obligations; project completion resolves further technical and revenue conditions. These stages can overlap. Their sequencing explains how the investment process moves forward without requiring every uncertainty to disappear at once. This is selective commitment: an equipment decision can become binding while a revenue condition remains open, and an access right can become effective while its eventual purchase price remains unsettled.

The distinctions change the interpretation of the same headline label. Calling both the MAXIM arrangement and the December 2024 GE Vernova reservations “reserved capacity” conceals whether price is settled. Calling BKV's October agreement a firm equipment purchase says nothing by itself about completion of the intended offtake agreement. In Anlima, failure to develop the project did not establish failure to provide the contracted reservation service. Each comparison identifies a specific inference that requires contract terms beyond the reported amount (Maxim Power Corp., 2026; GE Vernova, 2024; BKV Corporation, 2026b; Singapore High Court, 2026).

The cases reveal both the use and the cost of contractual flexibility. Anlima makes the buyer's exposure visible when the underlying project does not proceed, while BKV shows how an exit can be tied to a specified milestone. Such clauses determine where risk remains during development. They are central evidence about the institution, even before the eventual delivery outcome becomes observable.

5.8. From reservation to operating assets: a completed historical path

The 120 MW Windstar project in California provides a completed historical comparison. Western Wind records a Gamesa reservation order dated August 24, 2009 and a turbine supply agreement in November 2010 (Western Wind Energy Corp., 2012a). Its June 2011 financial statements report a $61.93 million deposit paid in December 2010, representing 40% of the turbine contract price. A further 50% was payable on arrival at the site; the remaining 10% was due at the earlier of grant receipt or ninety days after initial operation (Western Wind Energy Corp., 2011a). The payment schedule therefore connected procurement finance to distinct delivery and operating milestones.

The physical record follows the same project. By July 19, 2011, 80% of nacelles had arrived and 25% had been installed (Western Wind Energy Corp., 2011b). The December 20 release reports system energization and arrival of the remaining 14 MW of equipment, with commissioning still proceeding (Western Wind Energy Corp., 2011c). The subsequent operating report distinguishes initial operations on January 27, 2012 from commercial operation of the 120 MW facility by March 12. It also reports $15.67 million of operating revenue for the first half of 2012 (Western Wind Energy Corp., 2012b). These dated observations connect an early equipment reservation to delivered components and an operating asset.

The case also sharpens the meaning of project maturity. Windstar's power-purchase agreement originated in 2005, preceding the reservation, whereas the BKV equipment contract retains a later offtake contingency (Western Wind Energy Corp., 2012a; BKV Corporation, 2026b). There is no single ordering of all project-development tasks. What is common is the use of commitments to connect tasks that are completed at different dates. The institutional mechanism operates across different project sequences.

Windstar completes the sequence from reserved access through procurement payments to productive operation. Its 40% deposit belongs to the supply agreement, connecting a specified purchase obligation to subsequent delivery and operating milestones.

6. Implications for industrial investment

Advance contracts provide a form of coordination across firms whose investment tasks mature at different dates. Buyers pay to secure access before they can complete every project condition; suppliers acquire commitments and customer funds before delivery. Contract terms determine which decisions become binding, which remain adjustable, and who bears the cost when development stops. The central industry-level consequence is that earlier commitments remain active inputs into subsequent order growth and production planning.

6.1. Commitment and the timing of investment

The agreements establish a sequence of economically consequential decisions. A reservation allocates production access; a purchase contract adds delivery and payment obligations; completion resolves the remaining development conditions. Each stage assigns resources and exposure before the operating asset is available.

The supplier's adjustment then depends on both financial and technical conditions. Customer cash can support production working capital, investment, or other funding uses. Manufacturing capability can expand through equipment spending or productivity improvements. Payments, capital expenditure, manufacturing capacity, shipments, and operation therefore measure different stages of resource commitment. The funding contribution and production plans identify complementary parts of the adjustment: customer cash supports the supplier’s resource base, while manufacturing investment and productivity determine deliverable output.

6.2. Why order growth can outlast new commitment growth

The GE Vernova reconciliation identifies the source of the opposing flow signals. From Q1 to Q3, direct orders increased by 1 GW and conversions by 7 GW, raising gross firm-backlog additions by 8 GW. New reservations fell by 11 GW, reducing new entry by 10 GW after the increase in direct orders. The 18 GW gap between the two changes is exactly the increase in conversions minus the change in new reservations. Contractual advancement, rather than accelerating new intake, accounts for the divergence.

This is a form of persistence carried by the commitment stock. Once buyers have reserved access, later decisions can convert that stock into production obligations. Firm-order intake can consequently strengthen after new entry has slowed. The combined pipeline nevertheless grows when remaining entry exceeds shipment and exit. Over the observed nine months, 52 GW of new commitments, 12 GW of shipments, and a minus 1 GW reconciliation residual explain the increase from 83 to 122 GW. Pipeline size, the rate of advancement, and the rate of replenishment provide separate information about the expansion.

6.3. Implications for firms and industrial policy

For suppliers, capacity decisions require both the volume of outstanding work and its replenishment rate. A high conversion rate increases firm delivery obligations; sustained new entry replaces the workload being executed. Reading conversion as additional entry overstates replenishment and can misalign expansion plans with the source of orders. The practical disclosure requirement is a bridge showing opening reservations and backlog, new commitments, conversions, shipments, exits, and closing stocks on comparable definitions.

For buyers, early access must be evaluated together with the obligations it creates. Price certainty, refund protection, and release from future payments address different exposures. The contract comparison shows that a production slot does not carry a uniform bundle of those rights. Investment coordination depends on matching the equipment commitment to the project's remaining permitting, financing, and revenue conditions.

For industrial policy, a shortage of production access and a shortage of supplier finance are distinct constraints. In the funding framework, additional unrestricted cash expands the feasible set when finance binds; productivity and engineering conditions govern how that expansion becomes deliverable supply. Policy assessment should therefore separate financial support from the physical adjustment it is intended to enable. The buyer participation condition also identifies a distributional question: advance-payment requirements can select on access benefits and financial capacity as well as on the probability of project completion. Participation therefore depends jointly on the value of timely equipment, project prospects, and the buyer’s ability to fund the initial payment.

The broader implication is that investment momentum has a contractual composition. An industry can be executing yesterday's commitments while attracting fewer new ones today. Tracking entry, advancement, and delivery makes that composition observable. Contract provisions govern the obligations and exit options carried through that sequence.

7. Conclusion

Advance contracts coordinate infrastructure investment by allocating access, funding, and risk before projects are complete. Buyers acquire particular equipment rights and accept particular obligations while development continues. Suppliers receive customer funds and accumulate production commitments ahead of delivery. The contract comparison establishes how this coordination operates through selective commitment, while the completed Windstar history follows the sequence into an operating asset.

The progression of those commitments gives investment momentum a structure inherited from earlier decisions. GE Vernova's quarterly gross firm-backlog additions doubled from 8 to 16 GW between Q1 and Q3 2026 as new commitments declined 47.6%, from 21 to 11 GW. Conversions supplied 80.6% of gross firm-backlog additions over the nine months. At the same time, new entry exceeded shipments, allowing the combined commitment stock to expand. These results establish that stronger formal-order intake and a larger workload can coexist with weakening new procurement.

Industrial investment analysis must therefore distinguish the creation of commitments from their advancement and delivery. Contract terms identify what has become binding; cash-flow evidence identifies when customer resources enter suppliers' funding; the quantity reconciliation identifies whether the pipeline is being replenished or increasingly drawing on earlier commitments. Together, these observations explain how an infrastructure expansion continues to advance as its source of momentum changes.

Research transparency

The accompanying replication materials contain extracted observations, source links, contract coding, and calculation scripts. AI tools assisted with literature searches, coding, and manuscript preparation. The authors are responsible for verifying the sources, results, and final text.

Declarations

Author Contribution

F.Y. conceived the study, developed the methodology, conducted the formal analysis, wrote the software, curated the data, prepared the visualizations, and wrote the original manuscript. J.H. contributed to investigation, validation, and manuscript review and editing. T.Q. contributed to validation and manuscript review and editing. All authors reviewed and approved the final manuscript.

Data Availability

The extracted observations, source links, contract coding, and scripts for reproducing the reported calculations are provided in the accompanying supplementary material, Replication_Materials.zip. The original publicly available corporate disclosures, contractual records, and court decision are identified in the source index.

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- ReplicationMaterials.zip